

The NWS in San Diego

The San Diego Forecast Office prepares forecasts and any necessary warnings for a sizable area of Southern California, which is called a County Warning Forecast Area (CWFA or CWA). The San Diego CWA comprises all of Orange and San Diego Counties, western Riverside County,



southwestern San Bernardino County and adjacent coastal waters off San Diego County. The CWA is divided into forecast zones, each containing roughly similar climates. A zone forecast is made for each zone, the text of which is generated from a highly detailed graphical database. Forecast operations run continuously 24 hours a day, 365 days a year. The San Diego Forecast Office meteorologists are among the best experts of local weather and climate. They keep informed of research developments and the latest discoveries and news that impact the weather, such as El Niño and climate prediction, but do not conduct the research themselves and therefore are not experts in those research fields.

A History of the NWS in San Diego

Weather observations were first taken in San Diego from 1849 to 1871 at the San Diego Mission de Alcalá and at Ft. Stockton, now part of Presidio Park, by the Medical Corps of the Army. When the Army's Signal Service assumed the task in 1871, the weather observing station was moved downtown to Horton Square at present day Broadway between 3rd and 4th Avenues. The station moved around this area several times from 1871 until 1940, but always remained within a stone's throw of present day Horton Plaza. In 1890 the first Weather Bureau Office was located on 5th Avenue between E and F streets. In 1930 the office and a second weather observing station were relocated to the Lindbergh Municipal Airport 1 ½ miles northwest of the city office, but observations were continued downtown. In 1940 observations became official at Lindbergh Field. This new site was considered close enough and sufficiently similar in climate to the downtown location that the climate record was continued uninterrupted rather than starting a new separate record for the new location. In 1969 the weather equipment was moved to its current location at the General Aviation Building at Lindbergh Field, now San Diego's International Airport.

In 1970 the Lindbergh Field office became responsible for forecasting. The NWS office is responsible for the weather and climate of Southern California. The San Diego office issues forecasts and warnings for San Diego County in addition to the



at Lindbergh Field. In October 1995, the office at Lindbergh Field moved to Rancho Bernardo in the northern reaches of the city and discontinued taking the weather observations, but still maintained the climate record at Lindbergh with the help of automated equipment and contract observers installed in 1996. In 1997 the San Diego Office made a gradual transition to full forecast office capacity. Orange, western Riverside, and southwestern San Bernardino Counties were added to San Diego County to create the current area of responsibility. Since 1997 all forecasts and warnings for our area originate from the office in Rancho Bernardo. Marine forecast and warning responsibility for adjacent coastal waters were added in 1999. In late 2002, the Interactive Forecast Preparation System (IFPS) was implemented. This bold new forecasting system provides NWS forecasts in a graphical format and with a great amount of detail.

The People of the NWS in San Diego

The current staff at the NWS in San Diego consists of 25 employees. Four managers and one assistant direct the work activities and administrative duties of the office. An Information Technology Officer maintains computer systems. 11 forecasters (or meteorologists) prepare and disseminate forecasts and warnings, and attend to focal point duties and other projects. Four hydrometeorological technicians and one meteorologist intern collect and disseminate data, operate the NOAA Weather Radio, manage the climate observer program, and answer phone calls from the public and media. Three electronic technicians maintain and repair observational equipment, the two Doppler Radars and NOAA Weather Radio.

The Meteorologist-in-Charge (MIC) is Jim Purpura. He ultimately oversees all operations and work in the office and implements changes in policy or practices when needed. Questions about policy, funding, employment, technology, and the future are best directed to the MIC.

Ed Clark is the Warning Coordination Meteorologist (WCM). He maintains relationships with our partners in service, i.e., emergency management, agencies of flood control and law enforcement, fire departments, and the media. He keeps the staff current and proficient in correct warning practices, completes verification studies, and performs a variety of outreach activities.

Ivory Small is the Science and Operations Officer (SOO). He ensures that good forecasting techniques and good science are used by meteorologists through training and development. He implements the latest technology and meteorological theory from the research community and produces some of the research himself. He can answer questions regarding student volunteer and employment programs. He is the best resource for questions about the meteorology behind the weather.

The first line of phone communication is usually with a hydrometeorological technician. They answer general questions about the weather, climate, or forecast, or can point you in the right direction for the answer. Forecasters on duty can provide greater detail about the reasons behind the current weather or forecast. Many questions of this nature can be answered by consulting the latest Area Forecast Discussion, updated at least four times a day.

When not working basic operations directly, each member of the staff performs focal point duties. These include directing local programs, conducting special projects or overseeing other

areas of responsibility. A list of the entire staff and the numerous duties they perform in addition to operational duties can be found on our staff web page:
weather.gov/sandiego/office/staff.php?wfo=sgx.

Communications and Product Dissemination

Text products and information disseminated from the NWS are transmitted in a coded format. Each product name is identified, for Weather Wire and EMWIN (Emergency Manager's source) purposes, by its code containing nine letters. The code formula is cccNNNxxx, where ccc is the regional node, NNN is the product identifier, and xxx is normally the originating forecast office. For example, LAXZFPSGX indicates Los Angeles (LAX) is the regional node, the Zone Forecast Product (ZFP) is the name of the product, and San Diego-Rancho Bernardo (SGX) is the originating office. When a product is sent from the office, it goes to Gateway, the communications center for the NWS. From there, the products are disseminated to the world. News services and private weather information companies then pick up these products and send them to users. The NWS maintains the largest meteorological telecommunications switching center in the world, sending and receiving over 400,000 meteorological bulletins each day.

The NWS relies heavily on its partners in emergency management and the media to keep communities safe and well informed. Emergency managers and the media have timely access to severe weather information through a number of systems and services listed below. For information on how to set up a service to receive real-time weather information, contact our Warning Coordination Meteorologist, Ed Clark, at 858-675-8700 ext. 223.

The **Family of Services** includes the NOAA Weather Wire Service, NOAAPort and news agencies such as AP, UPI and City News Service. These systems provide paying subscribers consistent and timely weather information in real time. For more information, visit: www.weatherwire.net and www.noaaport.com.

Private commercial information vendors supply numerous paying customers with weather information packages tailored to their needs.

Emergency management and flood control agencies in California can receive timely information through the **California Law Enforcement Telecom System (CLETS)**. This originates from the State Office of Emergency Services in Sacramento. The **Emergency Manager's Weather Information Network (EMWIN)** provides real time information for a one-time cost for equipment and installation. Email and pager notification can be easily set up. However, this information may not be as reliable or timely as that found with the Family of Services. The **Interactive Weather Information Network (IWIN)** is a free Internet site with live data similar to EMWIN and a large selection of products. You can find it at: **iwin.nws.noaa.gov**. However, it is subject to the availability and connection problems inherent to the Internet.

Weather information can also be obtained from the National Weather Service anywhere and anytime using a wireless device. All you need is a wireless device that can surf the Internet along with a wireless Internet service provider. For more details, visit **www.srh.noaa.gov/cte.htm**.

Please note: The Internet is **not** the primary means of disseminating weather information from

the NWS and **should not be solely relied on at any time**, especially during significant weather events. **The clickable map on the home page is not the official means of communicating current watches, warnings or advisories in effect.** A backup source of information is recommended, such as NOAA weather radio or other systems mentioned above.

Special Programs - Click on one of the “special programs” on our homepage for more information.

The **Aviation** program encompasses the preparation, transmission and verification of Terminal Aerodrome Forecasts (TAFs) and Transcribed Weather Broadcasts (TWEBs). TAFs are coded 24-hour forecasts updated at least every six hours. TAFs give detailed weather conditions expected at six area airports: San Diego-Lindbergh Field (SAN), McClellan-Palomar Airport (CRQ), Orange County-John Wayne (SNA), Ontario (ONT), Palm Springs (PSP), and Thermal (TRM). Soaring forecasts are also generated daily. Aircraft accident reports are issued for fatal accidents.

The **Cooperative Observer Program** is a vast network of thousands of weather stations across the nation. Local volunteers keep a daily climate record with data collected from equipment supplied and maintained by the NWS. San Diego’s Cooperative Program Manager directs this work at around more than 90 official weather stations in our region. Data from some of the stations are used for hydrology and forecasting purposes. Climate data are forwarded to the National Climatic Data Center and become part of the official climate record.



Fire Weather forecasts are essential for fire fighting efforts by a number of agencies. Routine Fire Weather Forecasts are issued detailing sky condition, winds, relative humidity, and lightning potential. Specific spot forecasts are given by request for particular fire fighting or controlled burn situations, and also for hazardous material incidents. Fire Weather Watches and Red Flag Warnings are issued when dangerous fire potential exists.

The **Hydrology** program provides guidance and data for forecasting rainfall amounts and flooding. The hydrology focal point works closely with flood control agencies, NWS hydrologists and river forecasters to ensure data that is correct, useful and timely gets into the hands of forecasters during possible flooding events. Networks of instrumentation such as rain gauges and stream gauges are maintained to monitor rapidly changing hydrological events. Computer models and software are developed and maintained to permit accurate and



timely issuance of hydrological products such as flash flood warnings.



The **Marine** program oversees the quality preparation of marine forecasts. The Coastal Waters Forecast describes wind and sea conditions out to five days; the Surf Forecast provides details about the next day's surf. Relationships with the marine community are maintained, along with a network of coastal observation equipment for frequent observational data. Warning systems are ready to be used in the event of large surf, coastal flooding, tidal overflow, tsunamis, or severe weather of any kind over the coastal waters.

NOAA Weather Radio (NWR) continuously broadcasts a cycle of warnings, forecasts and current conditions on six separate frequencies on the VHF band, originating from our office. Specially designed receivers have the capability to alarm and play a warning at the moment it is issued. This is possible due to ever-improving computer-synthesized voice technology. A Spanish language transmitter was installed in June 2004 in the Coachella Valley and provides Spanish broadcast of all products. It is the first transmitter of its kind in the west.



The following table includes transmitter locations, names, and frequencies:

San Diego (east of Poway)	KEC-62	162.40 MHz
Santa Ana Mountains (south of Corona)	WWG-21	162.45 MHz
Coachella Valley (east of Indio)	KIG-78	162.40 MHz
Strawberry Peak (south of Lake Arrowhead)	WXM-66	162.50 MHz
Mt. Soledad Marine (La Jolla)	WNG-637	162.425 MHz
Coachella Valley Spanish (east of Indio)	WNG-712	162.525 MHz

The **Public Forecast** is controlled by the management of the office. The former flagship product is the Zone Forecast, the routine forecast for the masses issued at least twice daily and still frequently used. The forecast is text generated from our digital forecast database. Forecasts of sky condition, temperatures, precipitation and significant winds are included in the forecast which extends to seven days. Area Forecast Discussions are issued at least four times a day. They give the current reasoning behind the forecast and explain any additional action taken. Quantitative Precipitation Forecasts are issued during the wet season to indicate expected rainfall amounts. Hydrologic Outlooks containing flash flood potential indices are issued during the summer thunderstorm season in the mountains and deserts. Hazardous Weather Outlooks are issued early on mornings when any hazardous weather is expected for the upcoming week. Any necessary watches, warnings, advisories, and other statements are issued under the direction of the Public Forecaster on duty.

The **Weather Spotter Program** is a network of volunteers. A weather spotter is a person who observes significant weather and relays the information to the NWS. With this information, forecasters can issue warnings and update forecasts if necessary in a more accurate and timely manner. Around 900 weather spotters are keeping an eye to the sky in our forecast area.

Information about the program, including the quarterly newsletter can be found at:

www.wrh.noaa.gov/sgx/spotter/spotter-info.php?wfo=sgx.

Skywarn is a more proactive spotter network involving ham radio communications to relay weather information during active weather events. When forecasters deem appropriate, Skywarn is “activated” and a Skywarn member operates radio communications from the Rancho Bernardo office. For more information on the local Skywarn organization, visit **www.swskywarn.org**.

Spotter training presentations are held occasionally to recruit and train weather spotters.